Understanding Lab Tests

By Greg Dut

Pathologists, medical professionals who diagnose diseases by studying the body’s organs, tissues, and fluids in laboratories, work quietly in the background, but they may be the first to identify a patient’s life-threatening condition, often in time for successful treatment.

A medical lab test may be ordered by your doctor as part of a routine checkup, including prescreening for certain common conditions, or it may be prompted by symptoms that indicate a health problem. The most common lab tests are performed on blood samples to determine whether the levels of various substances in your blood fall within the normal range for your age, gender, race, and other factors. Abnormal results—too high or too low a level of a certain substance—can indicate a medical condition.

The Most Common Blood Tests

The National Heart, Blood and Lung Institute, NIH, says that some of the most common blood tests include the complete blood count (CBC), blood chemistry tests, blood enzyme tests, tests to assess heart disease risk (especially cholesterol) and clotting tests. The complete blood count can help detect conditions such as anemia, infections, clotting problems, blood cancers and immune system disorders by looking at your red and white blood cell counts, and other blood properties.

Other important blood tests include the basic metabolic panel (BMP), a group of tests that measure different chemicals in the blood to see how organs such as your heart, kidneys and liver are functioning. There are tests to measure blood glucose, which look for signs of diabetes, tests for abnormal levels of calcium, which could mean kidney problems, bone disease, thyroid disease, cancer and other conditions.

Abnormal levels of certain electrolytes such as sodium, potassium, bicarbonate, and chloride can indicate dehydration, kidney disease, liver disease and others, while the lipoprotein panel can help show whether you’re at risk for heart disease by measuring your levels of good and bad cholesterol.

The Role of the Pathologist

Dr. Olga Falkowski, Medical Director of Auc-Path Laboratories in Plainview, says “the pathologist’s role is crucial. We are first in line to help diagnose a condition which requires further evaluation and maybe treatment is needed.”

The test, Falkowski said, can indicate whether the patient needs surgery, chemotherapy, radiation, or other treatment. “If a person’s blood tests show high PSA,” she said, a common test for prostate cancer, “the next step may be a biopsy (issue sample).” The main goal is to make a diagnosis, then tell the clinician what exactly is the grade of the tumor, how large it is, what percentage of the tissue is involved.

No Symptoms? Blood Tests Can Reveal Problems

Dr. Michael Shanik, an endocrinologist practicing at Endocrine Associates of Long Island in Smithtown, treats disorders related to hormones, substances produced in an organ which can then travel to another part of the body. Two conditions Dr. Shanik commonly orders blood tests for are diabetes and thyroid disease.

“For diabetes, the most common thing is a blood test to evaluate blood sugar (glucose). If it’s elevated, it indicates an imbalance of insulin in the body.”

How do you know if you need a test for diabetes?” You may not necessarily have symptoms,” said Shanik, “but if you do, the most common are unintentional weight loss, frequent urination, thirst, hunger, and blurry vision.”

Since many life-threatening conditions may not exhibit symptoms in the early stages, periodic screenings are recommended. “The most important thing is that people follow prescreening guidelines. A lot of people ignore it, don’t want to think about it. If you find something early it can often be easily cured, but if you wait, it can get to be too late,” the screenings are out there for you, and it’s the future of medicine,” Falkowski said.

Blood Tests...

The Complete Blood Count (CBC) tests various blood components including red and white blood cell counts and size, hemoglobin, hematocrit, and platelets (see definitions below) to detect problems such as anemia, infections, clotting problems, blood cancers, and immune system disorders.

The Basic Metabolic Panel (BMP) measures different chemicals in the blood including glucose, calcium, and electrolytes, and includes kidney function tests. Together these can detect diabetes, kidney and liver problems, bone disease, thyroid disease, cancer or malnutrition, dehydration, heart failure, or other disorders.

The Lipid Panel measures the levels of LDL (low density or “bad”) cholesterol and HDL (high density or “good”) cholesterol and triglycerides at levels to assess your risk for coronary heart disease and other conditions.

Some Blood Count Definitions

Red Blood Cells carry oxygen from your lungs to the rest of your body. Abnormal levels may indicate anemia, dehydration, bleeding, or another disorder.

Hemoglobin is an iron-rich protein in red blood cells that carries oxygen. Abnormal hemoglobin levels might be a sign of anemia or other blood disorders.

Hematocrit is a measure of how much space red blood cells take up in your blood. A high hematocrit level might mean you’re dehydrated. A low hematocrit level might mean you have anemia. Abnormal hematocrit levels also might be a sign of a blood or bone marrow disorder.

White Blood Cells are part of your immune system, which fights infections and diseases. Abnormal levels might be a sign of infection, blood cancer, or an immune system disorder.

...and What They Can Reveal*

Source: The National Heart, Blood and Lung Institute (NHLBI)

*The information provided here should not be construed as medical advice or instruction on individual health matters. Always consult with a health professional regarding medical tests and test results.